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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/960,422 | 09/21/2001 | Teemu Kaiponen | 297-010484-US(PAR) | 5561 |

2512 7590 03/29/2004

PERMAN & GREEN
425 POST ROAD
FAIRFIELD, CT 06824

EXAMINER

ENG, GEORGE

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2643

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,422

Applicant(s)

KAIPONEN ET AL.

Examiner

George Eng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2 and 4-5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statements filed 9/21/2001 (paper no. 2), 12/26/2001 (paper no. 4) and 10/2/2003 (paper no. 5) has been considered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, the phrase "or element with similar function" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or element with similar function"), thereby rendering the scope of the claim(s) unascertainable.

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Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faraone et al. (US PAT. 5,982,335 hereinafter Faraone).

Regarding claim 1, Faraone discloses a planar antenna for use in a portable communication device, i.e., a mobile station, comprising a planar antenna (100, figure 1) including a ground plane (130, figure 1) and a planar radiator element (110, figure 1), which is disposed substantially parallel to the ground plane, and the portable communication device obviously including a printed wired board, which is located substantially parallel to the ground plane and the radiator element, wherein the ground plane covers a first area of the printed wired board and the radiator element covers a second area on the printed wired board characterized in

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that the antenna arrangement comprises a layer of low reluctance material (140, figure 1) which the layer is substantially parallel to the printed wired board and covers a third area on the printed wired board (col. 1 line 11 through col. 3 line 19). Faraone differs from the claimed invention in not specifically teaching the layer of low reluctance material is located that the third area on the printed wired board is at least in part outside the first and second areas on the printed wired board. However, Faraone teaches to position a low reluctance material in close proximity to the planar radiating element to influence radiation pattern so the one skill in the art would recognize to locate the layer of low reluctance material at third area on the printed wired board is at least in part outside the first and second areas on the printed wired board in order to improve antenna efficiency.

Regarding claim 2, Faraone discloses the low reluctance covering a high intensity RF current area on the printed wired board for reducing the RF current intensity on the area (col. 2 lines 11-15).

Regarding claim 3, Faraone discloses the low reluctance material formed from ferromagnetic material for reduction in size of the portable communication device so that one skill in the art would recognize the low reluctance material being a flexible ferrite sheet (col. 2 lines 7-11).

Regarding claim 4, Faraone discloses the mobile station including a display unit (520, figure 5) so that one skill in the art would recognize the layer of low reluctance material being located between the display unit and the printed wired board in order to enhance directivity and efficiency of the antenna (col. 3 lines 20-24).

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Regarding claim 5, it is old and notoriously well known in the art of a display unit comprising a light guide for make user friendly so that one skill in the art would recognize to attach the layer of low reluctance material to the light guide in order to improve antenna efficiency (col. 2 lines 11-15).

Regarding claim 6, Faraone discloses the low reluctance material (140, figure 1) being attached to the ground plane (130, figure 1).

Regarding claim 7, Faraone discloses a dielectric substrate (120, figure 1) located between the radiator element (110, figure 1) and the ground plane (130, figure 1) so that one skill in the art would recognize an air gap between the radiator element and the ground plane.

Regarding claims 8-9, the ground plane being formed of a conductive layer of the printed wired board, which is nearest to the radiator element (figure 1 and col. 1 line 63 through col. 2 line 15).

Regarding claim 10, Faraone teaches to place the low reluctance material in close proximity to radiator element to influence radiation pattern (col. 3 lines 20-25) so that one skill in the art would recognize to place the planar antenna at the end of the printed wired board and the low reluctance material from the end of the printed wired board.

Regarding claim 11, Faraone teach to incorporate the planar antenna for portable communication device (col. 1 lines 1-3) so that one skill in the art would recognize the printed wired board to connect the planar antenna to other electronics of the portable communication device.

Regarding claim 12, the limitations of the claim are rejected as the same reasons set forth in claim 1.

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Regarding claim 13, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claim 14, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 15, the limitations of the claim are rejected as the same reasons set forth in claim 5.

Regarding claim 16, the limitations of the claim are rejected as the same reasons set forth in claim 10.

Regarding claim 17, the limitations of the claim are rejected as the same reasons set forth in claim 11.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lindell (US PAT. 6,580,397) discloses an arrangement related to an antenna system for mobile terminal (abstract). Jones et al. (US PAT. 6,531,985) discloses an integrated diversity antenna solution for positioning multiple antennas within a digital device case (abstract). Nghiem (US PAT. 6,114,966) discloses an increased bandwidth patch antenna including first and second arms spaced by an air gap (abstract). Phillips (US PAT. 6,421,016) discloses an improved antenna system to channel counterpoise currents for an unbalanced antenna (abstract).

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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Washington D.C. 20231

Or faxed to:

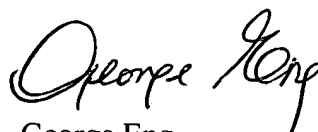
(703) 872-9306 (for Technology Center 2600 only)

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, V.A., Sixth Floor (Receptionist).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Eng whose telephone number is 703-308-9555. The examiner can normally be reached on Tuesday to Friday from 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A. Kuntz, can be reached on (703) 305-4870. The fax phone number for the organization where this application or proceeding is assigned is 703-308-6306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.



George Eng
Primary Examiner
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